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NEW SOVIET KNEE-TYPE MILLING MACHINES

S. M. Benin

[This is the second installment of a continued article on a new series of milling machines made by the Gor'kiy Milling-Machine Plant. [redacted] for first installment.] 50X1-HUM

Design of Models 6N81, 6N81G and 6N11

These machine tools were designed by chief designer I. P. Konstantinov, head designer I. S. Zvorygin, designers V. K. Furin, L. Ya. Rabinov, G. S. Gershun, and technologists A. F. Gamynin, V. P. Dubov, and A. I. Ovchinnikov.

The No 1 knee-type milling machines have a 1,000- x 250-millimeter table. Model 6N81 is a universal milling machine; 6N81G, horizontal; and 6N11, vertical.

The column of the horizontal machine is a rigid casting with vertical dovetail-shaped ways for the knee. The knee carries a saddle and a work table. The table travels in a longitudinal direction on the saddle ways and in a transverse direction (together with the saddle) on the square knee ways.

The rear wall of the column is slightly recessed. It has a window and plate for holding the gear box and forms a niche which houses the v-belt drive to the spindle and brake. The niche is closed with a cover beneath which a cabinet with the electrical equipment is secured.

The spindle, gear train, and ram are mounted in the upper part of the column. The spindle has 16 speeds ranging from 65 to 1,800 revolutions per minute. It is driven by a 3.2-kilowatt electric motor. Spindle speeds are controlled by a single hand wheel through gears located in the left side of the column.

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The feed box with reduction gear, the feed-change mechanism, and reverse gear box are located inside the knee. There are 16 different feeds ranging from 27 to 815 millimeters per minute. Feed is changed by means of a single hand wheel.

The column is bolted to the base. The horn for the knee elevating screw and the coolant pump are also secured to the base. The base hollow serves as a tank for the coolant.

All mechanisms of the machine are fully self-contained, which not only simplifies and facilitates assembly and dismantling for repair, but also facilitates organization of conveyer production of these machines.

With the exception of the column, the basic mechanisms of the 6N11 vertical machine are interchangeable with the horizontal model. The column is cast as a whole with the body on which the spindle and gear train are mounted. The gear box and belt drive are enclosed on the top of the column. Gang switches are located in a niche on the left side of the column.

/This article is to be continued in a later edition of Stanki i instrument./

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